

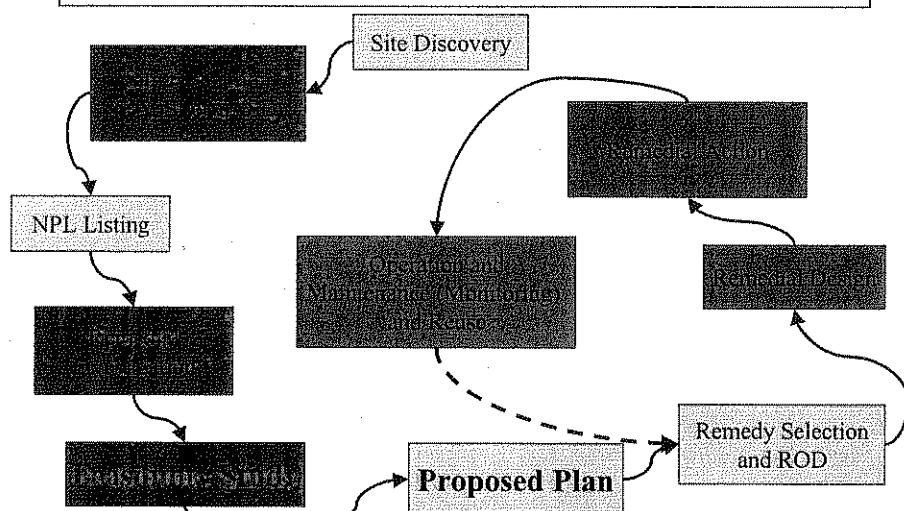
# Old Firefighting Training Area Phase 2 Predesign Investigations



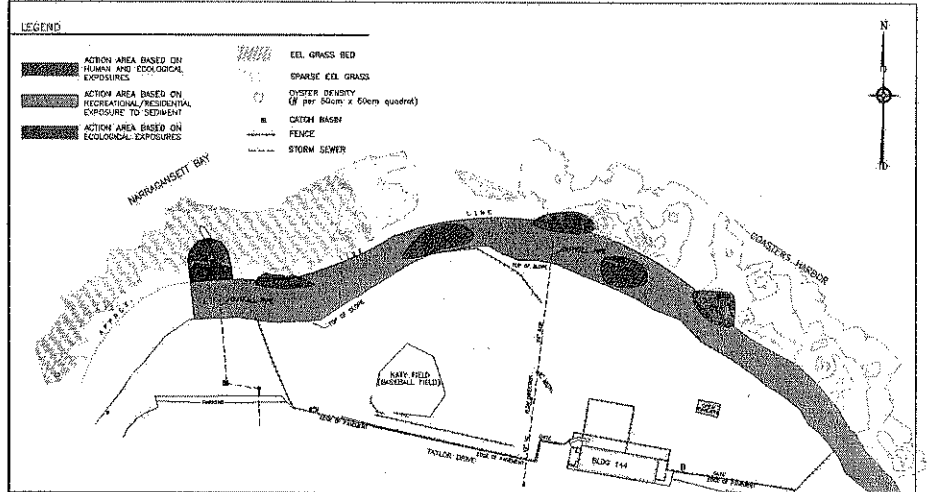
RAB PRESENTATION

November 20, 2002

## OFFTA In The CERCLA Process

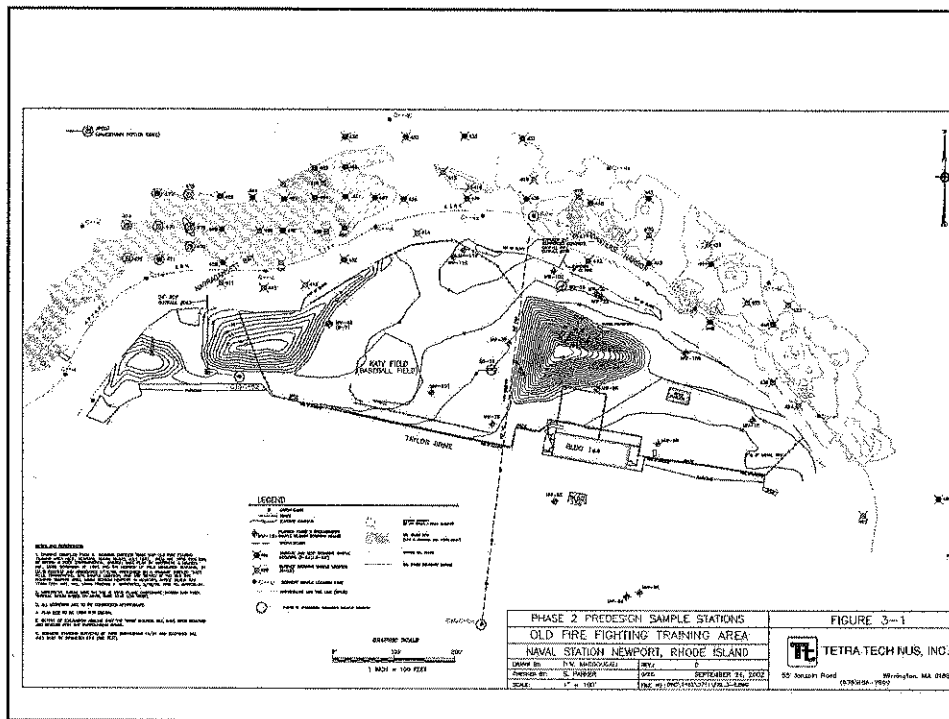


## Feasibility Study: Possible Action Areas



## Recent Steps: Phase 2 Pre-design Investigations

- Confirmation of contaminants in eelgrass area
- Forensic analysis of selected sediment and soils
- Groundwater sampling and analysis



## Phase 2 Predesign Eelgrass Area Sediment Results

- PRGs Not exceeded in the eelgrass area this time
- Former “hot spot” found to be below cleanup goals
- Elevated contaminants west of former hot spot
- Uncertainty in behavior of contaminants in sediment

## Phase 2 Predesign

### Sediment Forensic Analysis

- Refer to Handouts
  - Hydrocarbon Fingerprint
  - PAH Analyte Pattern
  - PAH Analyte Ratios
  - Alkane Fingerprints
  - Terpane Biomarker Fingerprint

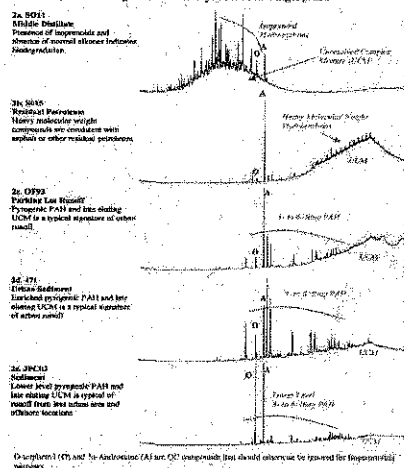
## Sediment Forensic Analysis

### Hydrocarbon Fingerprint

- Selected samples graphed
- Peaks represent chemicals in the sample
- Components similar in storm drain and marine sediments
- Components in soil different

Old Fire Fighting Training Area Final Report September 18, 2002

Figure 2. Selected High Resolution Hydrocarbon Fingerprints

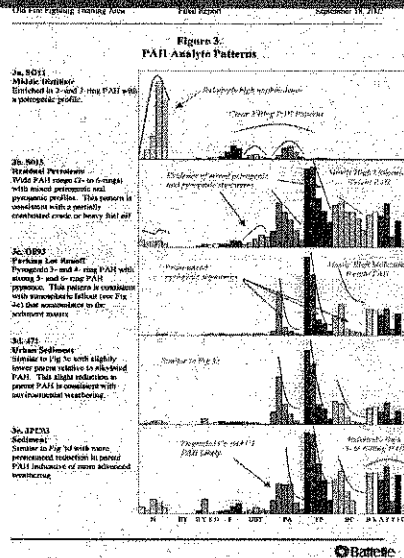


Barrett

# Sediment Forensic Analysis

## PAH Analyte Patterns

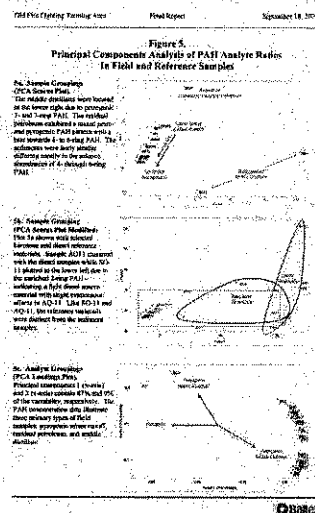
- First two are soil samples with quite different signatures
- Parking lot runoff and marine sediment very similar, almost identical
- Reference station sediment similar



# Sediment Forensic Analysis

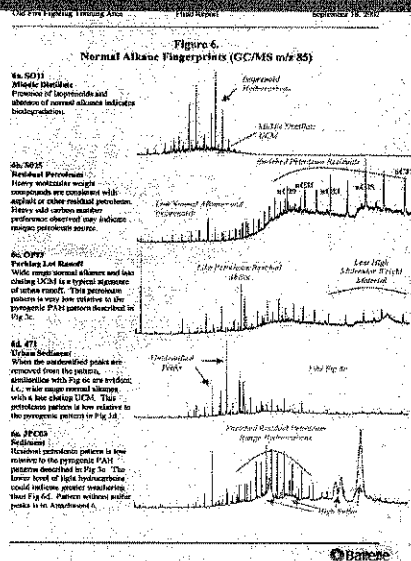
## PAH Analyte Ratios

- Scatter plot of principal components
- Same plot with some reference material shown (diesel & kerosene residuals)
- Analyte groupings



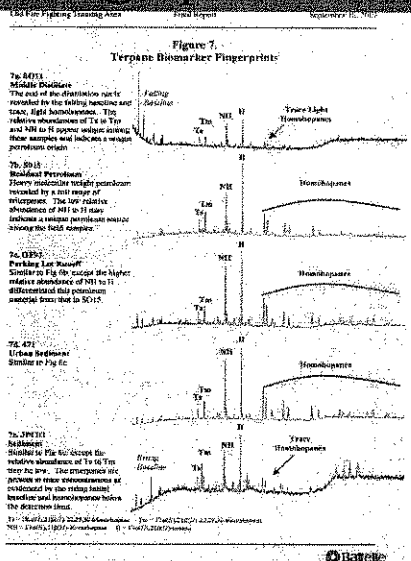
# Alkane Fingerprints

- SO-11 Alkanes missing, indicating degradation
- SO-15 Large MW compounds indicate residual petroleum
- OF-93 Typical signature of parking lot runoff
- SD471 similar to OF-93
- Reference sediment, later peaks indicate greater weathering of the contaminants



# Sediment Forensic Analysis

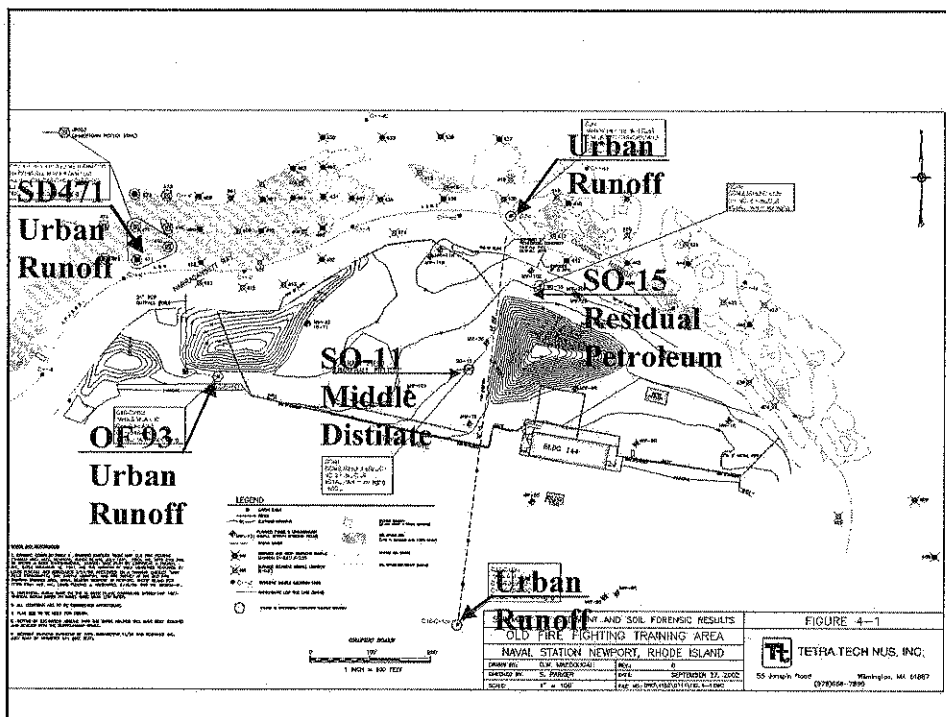
- Biomarkers in the analytes
- similarities in one soil sample, the sediment, and the storm drain samples
- Reference sediment and other soil sample quite different



## Phase 2 Predesign

### Sediment Forensic Analysis

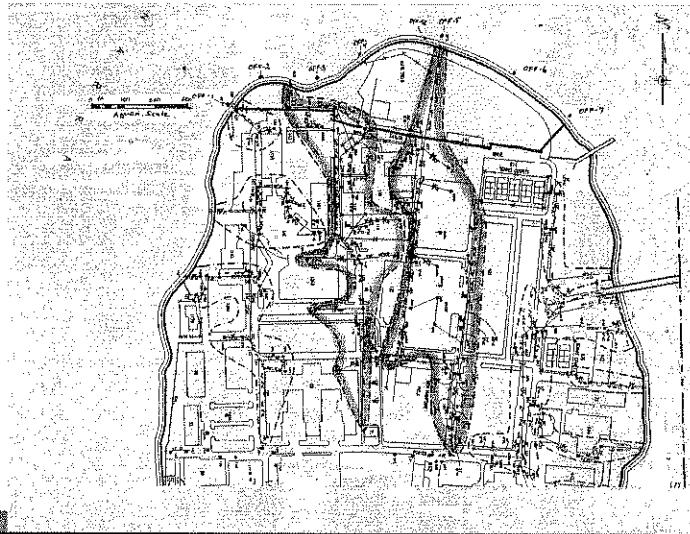
- Soil at site contained weathered oil and heavy molecular weight hydrocarbons
- Parking lot drains contained PAHs typical of urban runoff
- Contaminants in marine sediment at the shoreline matched that in the storm drains



## Conceptual Site Model:

### Surface Runoff

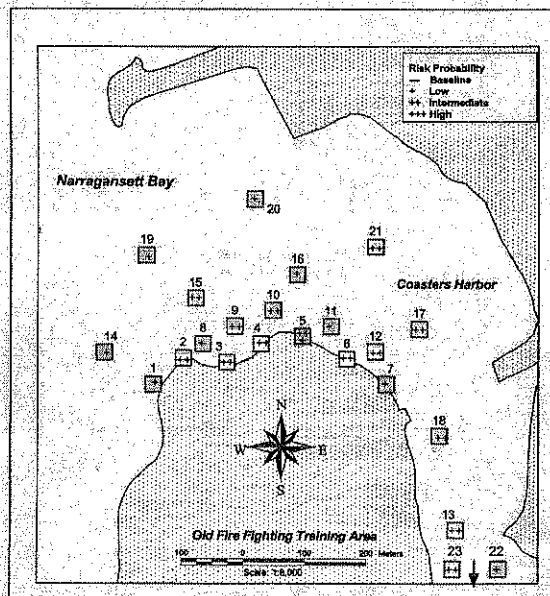
- Areas of high PAHs in sediment are co-located with outfalls
- Blue = 3.5 Acres
- Green = 5.4 Acres



## Ecological Risk Assessment:

### Findings

- One High risk station co-located with the primary outfall





## Phase 2 Predesign

### Groundwater Results

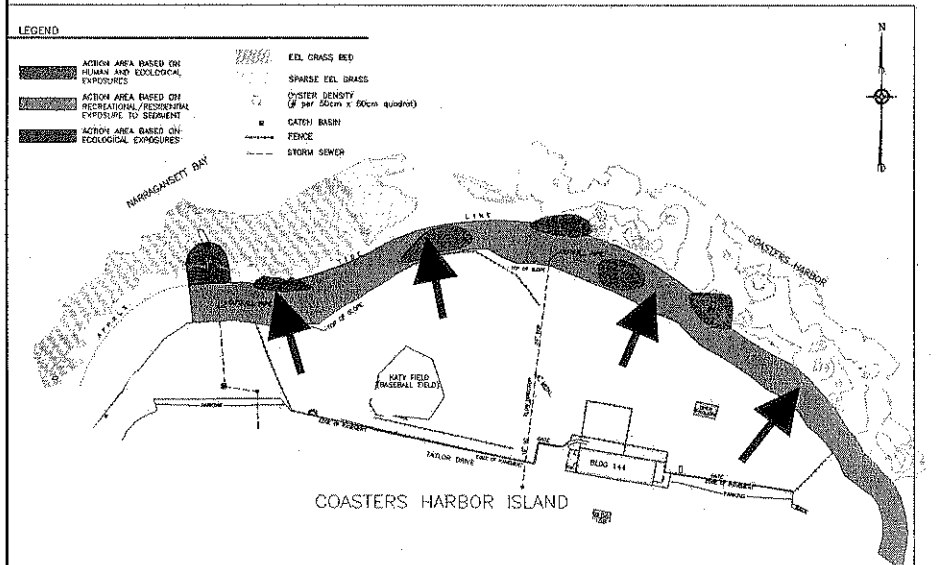
- Organic Compounds detected above PRGs in 1997 were below PRGs in 2002
- Manganese exceeds PRG (source unknown)
- Salinity in groundwater precludes use as domestic or municipal water supply

## Phase 2 Predesign:

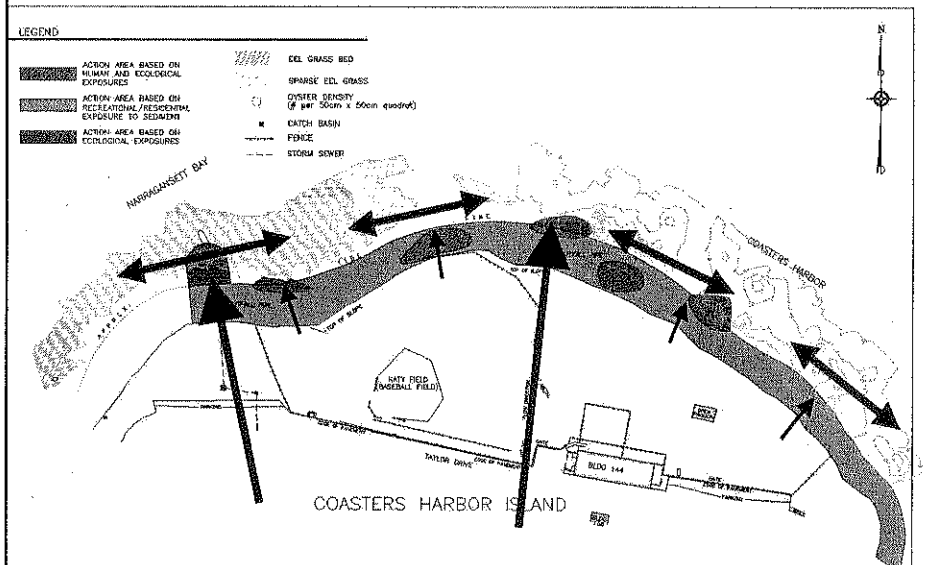
### Conclusions

- Behavior of contaminants in sediment is uncertain, dynamic
- Sediment contamination is being contributed to by urban runoff
- Soil contamination is somewhat different from sediment contamination
- Groundwater is not anticipated to be used as a water supply

# Old Conceptual Model



# New Conceptual Model



## OFFTA

### Next Steps

- Navy and Regulators to discuss preferred actions
- Proposed Plan to be submitted this winter
  - Public Meeting
  - Public Comment Period
- Decision for remedial action in 2003